

Claims

1. A high-voltage thick-film high rupturing capacity substrate fuse incorporating an insulating tubular casing closed at both ends by metal end-caps and filled with arc quenching medium, in which casing at least one insulating substrate is located having at least one fuse element, placed on it along its length, in the form of a thin, electrically conductive film, and having terminal areas located at its ends, which areas are electrically connected with the end-caps by specially formed contacts located in the end-caps, **characterised in that** the fuse element (5) consists of a basic part, formed by many identical modules having a shape resembling the letter „V”, thus forming a line bending many times at a constant angle, and of two end modules forming electric connections between the basic part and the terminal areas, at least one module having at least one constriction (9) allowing for the opening of the current path during fuse overload, and the terminal areas (6) being arranged along the two shorter edges of the insulating substrate.
2. A fuse as per claim 1 characterised in that that the angle between the arms of the letter „V” of each module of the basic part is selected to assure appropriate insulating gaps between neighbouring modules, required for high voltage.
3. A fuse as per claim 1 characterised in that in each module the arms of the letter „V” of specific width end with arches directed outwards, which are connected with the arches of the arms of the neighbouring modules by line segments, thus forming a sine curve bending many times at a constant angle and having truncated vertices in each module.

4. A fuse as per claim 3, characterised in that the constriction (9) is located in the truncated vertex of a module.
5. A fuse as per claim 4, characterised in that the constriction (9) is formed by mirror notches made in the two opposite edges.
6. A fuse as per claim 1, characterised in that the constriction (9) is located on the line segment connecting the arches of the arms of neighbouring modules.
7. A fuse as per claim 1, characterised in that the constriction (9) is located in the arms of a module and is formed by mirror notches made in the two opposite edges.
8. A fuse as per claim 1, characterised in that the end module has the shape of one arm of a single module.
9. A fuse as per claim 1, characterised in that the end module has the shape of a line segment.
10. A fuse as per claim 1, characterised in that the terminal areas (6) are arranged parallel to the longer axis of the substrate.
11. A fuse as per claim 1, characterised in that on one surface of the substrate (4) there are located at least two fuse elements (5), which are arranged parallel to each other.
12. A fuse as per claim 1 or 11, characterised in that at least two fuse elements (5) together with the terminal areas (6) are arranged on opposite surfaces of the substrate (4).
13. A fuse as per claim 1 or 11 or 12, characterised in that inside the casing (1) there are placed at least two insulating substrates (4), which are separated from one another by arc quenching medium (3).
14. A fuse as per claim 13, characterised in that it incorporates two insulating substrates (4), which are arranged parallel to one another.
15. A fuse as per claim 14, characterised in that between the insulating substrates (4), along the fuse longitudinal axis, there is placed an insulating tube (10), which houses the fuse element of the striker (11).
16. A fuse as per claim 13, characterised in that it incorporates three insulating substrates (4), arranged in such a way that, in cross-section, they form an arrangement resembling an isosceles triangle.

17. A fuse as per claim 16, characterised in that between the insulating substrates (4), along the fuse longitudinal axis, there is placed an insulating tube (10), which houses the fuse element of the striker (11).
18. A fuse as per claim 13 characterised in that it incorporates at least two insulating substrates (4), arranged in a radial pattern with respect to the fuse longitudinal axis.
19. A fuse as per claim 18, characterised in that, along the longitudinal axis of the fuse incorporating at least two insulating substrates (4) arranged in a radial pattern with respect to the fuse longitudinal axis, there is placed the insulating tube (10), which houses the fuse element of the striker (11).
20. A fuse as per claim 1, characterised in that the insulating substrate is made of ceramics, glass-ceramics or glass.
21. A fuse as per claim 1, characterised in that the insulating substrate (4) is made of flexible material.
22. A fuse as per claim 21 characterised in that the insulating substrate (4) forms a roll, which is placed longitudinally and centrally inside the casing (1).
23. A fuse as per claim 22, characterised in that inside the roll formed by the insulating substrate (4), along the fuse longitudinal axis there is placed the insulating tube (10), which houses the fuse element of the striker (11).
24. A fuse as per claim 13, characterised in that it incorporates at least two insulating substrates (4), which are arranged in such a way that the longitudinal axis of each insulating substrate (4) is located on the circle with a radius of (R) intersecting the fuse longitudinal axis, and the transverse axis of each insulating substrate (4) deviates from the line connecting the longitudinal axes of the fuse and the insulating substrate (4) at an acute angle (α).
25. A fuse as per claim 24, characterised in that along the fuse longitudinal axis there is placed the insulating tube (10), which houses the fuse element of the striker (11).